

JUL 03 2008

PATENT APPLN. NO. 10/540,624
RESPONSE UNDER 37 C.F.R. §1.111

PATENT
NON-FINAL

IN THE SPECIFICATION:

The paragraph beginning at page 17, line 26 has been amended as follows:

The layered product 5 of Fig. 1 is a five-layer product as described before. The first layer 1a and the fifth layer 1b are structurally identical. The surface 4b of the fifth layer 1b corresponds to the surface 4a of the first layer 1a. The second layer 2a and the fourth layer 2b are structurally identical. These layers 2a and 2b respectively consist of a matrix resin (for example, epoxy-based resin) and groups of reinforcing fibers (for example, groups of carbon fibers). The third layer 3 also consists of a matrix resin (for example, epoxy-based resin) and groups of reinforcing fibers (for example, groups of carbon fibers). In the layered product [[A1]] 5 of Fig. 1, for control of entire mechanical properties, the groups of reinforcing fibers in the respective layers 1a, 2a, 3, 2b and 1b are different in the direction of arrangement. Especially for efficiently enhancing, the elastic modulus and strength of the layered product [[A1]] 5, it is preferred to use unidirectional fiber bundles as the groups of reinforcing fibers. In the case where the layered product [[A1]] 5 is thin and limited in the number of layers, it is preferred that the groups of reinforcing fibers of the outermost

layers 1a and 1b are arranged in a direction of about 45 degrees when the longitudinal direction of the layered product [[A1]] 5 is 0 degree.

The paragraph beginning at page 18, line 22 has been amended as follows:

To make the molded object formed of the layered product [[A1]] 5 look like a cloth, it is preferred that a cloth of plain weave, satin weave, twill weave or the like is used as the groups of reinforcing fibers of the outermost layers of the layered product [[A1]] 5.

The paragraph beginning at page 48, line 2 has been amended as follows:

Fig. 12 shows a process for producing an integrated molded object PC using a conventional layered product. Sheets of the prepreg 60P consisting of a thermosetting resin composition and reinforcing fiber bundles are laminated to form a layered product PA according to the same molding method subprocess 70P as the layered product molding subprocess 70 shown in Fig. 11. The molding subprocess 70P comprises the step 71P for cutting a prepreg 60P into a predetermined size, the step 72P for laminating sheets

of the prepreg 60P at predetermined angles, the step 73P for heat molding the laminated sheets to produce the layered product PA and the step 74P for post-processing to cut the layered product PA into a predetermined size for producing the molded object PC, which correspond, respectively, to the step 71, the step 72, the step 73 and the step 74 in Fig. 11. In this layered product PA, the thermoplastic resin composition 62 of Fig. 11 does not exist. Since the obtained layered product PA is not thermally adhesive, for example, an adhesive must be used in an integration step for obtaining the integrated molded object PC.

The paragraph beginning at page 56, line 1 has been amended as follows:

In reference to Fig. 13, the electromagnetic-shielding molded object C3 of the invention is explained. In Fig. 13, the electromagnetic-shielding molded object C3 is obtained by integrating a first structural member A3 composed of a resin composition in which groups of continuous conductive fibers consisting of numerous filaments are arranged in layers, and a second structural member ~~[[B2]]~~ B3 consisting of a thermoplastic resin composition.

The paragraph beginning at page 62, line 12 has been amended as follows:

The reinforcing fibers used here are not especially limited and can be the same as the reinforcing fibers used in the layered product A of the invention. It is preferred that the reinforcing fibers contained in the second structural member [[B2]] B3 are conductive fibers. As the conductive fibers, in view of the light weight and mechanical properties of the obtained electromagnetic-shielding molded object C3, carbon fibers are preferred. The reinforcing fibers can also consist of at least two kinds of reinforcing fibers.

The paragraph beginning at page 62, line 21 has been amended as follows:

In the second structural member [[B2]] B3, it is preferred that the reinforcing fibers are uniformly dispersed in the thermoplastic resin composition. As for the ratio of the thermoplastic resin composition and the reinforcing fibers, in view of the balance among moldability, strength and light weight, the amount of the thermoplastic resin composition is preferably from 25 to 95 wt%, more preferably from 35 to 85 wt%, and the amount of the

reinforcing fibers is preferably 5 to 75 wt%, more preferably 15 to 65 wt%.

The paragraph beginning at page 63, line 13 has been amended as follows:

The number average fiber length L_n is a simple mean value of fiber lengths in the number of measured fibers, and sensitively reflects the contribution of fibers with short fiber lengths. The reinforcing effect based on fiber lengths is larger when the fiber lengths are longer. Since the fibers with long fiber lengths and the fibers with short fiber lengths are different in effect, it is not preferred to consider them equally. In the case where the reinforcing effect by fibers with longer fiber lengths is respected, it is desirable to consider the weight average fiber length L_w . When the mechanical properties of the molded object C3 is judged, it is preferred to consider the weight average fiber length L_w of the discontinuous reinforcing fibers contained in the second structural member $[[B2]]$ B3.

The paragraph beginning at page 65, line 4 has been amended as follows:

For producing the second structural member B3 containing reinforcing fibers with a weight average fiber length L_w of 0.4 mm or more and with an L_w/L_n ratio of 1.3 to 2.0 by molding, for example, long-fiber pellets disclosed in JP63-37694B are used. Each of the long-fiber pellets has a length substantially equal to the length of the pellet and consists of reinforcing fibers arranged in the longitudinal direction of the pellet and a thermoplastic resin composition. Coated pellets disclosed in JP60-62912U can also be used. Each of the coated pellets is produced by covering a continuous reinforcing fiber bundle with a thermoplastic resin composition and cutting into a predetermined length. The second structural member B3 can be produced by mixing chopped fibers of 1 to 20 mm in length and pellets of a resin composition and injection-molding. This molding method is preferred.

The paragraph beginning at page 66, line 20 has been amended as follows:

The electromagnetic-shielding molded object C3 of the invention is obtained by integrating the first structural member A3 and the second structural member B3. The method for integrating the first structural member A3 and the second structural member B3

is not especially limited. As one method, the first structural member A3 is molded beforehand, and the second structural member B3 is molded and concurrently integrated with the first structural member A3. As another method, the second structural member B3 is molded beforehand, and the first structural member A3 is molded and concurrently integrated with the second structural member B3. As a further other method, the first structural member A3 and the second structural member B3 are molded respectively separately beforehand, and then both the structural members are integrated. The means for integrating both the structural members include bonding, welding, fitting, inserting, etc. As an especially preferred integration method, the first structural member A3 molded beforehand is inserted into a mold, and then, the thermoplastic resin composition to be molded into the second structural member B3 is injected, to integrate the second structural member B3 with the first structural member A3. As another preferred integration method, the first structural member A3 molded beforehand and the second structural member B3 molded beforehand are integrated by ultrasonic welding. If the first structural member A3 used in this case is the layered product A of the invention, an excellent bonding strength can be obtained.